

Minutes of the Carlisle Board of Health
January 16, 2007
Approved: February 27, 2007

Present: Board members Martha Bedrosian (Chairman), Michael Holland, Jeffrey Brem, Bill Risso, Leslie Cahill absent; Linda Fantasia (Agent); Rob Frado (TCG), Laura Foley (Carlisle Mosquito)

The meeting was called to order at 7:30 p.m. at the town hall.

BILLS – It was moved (Bedrosian), seconded (Risso) and unanimously voted to approve the bills as presented.

CARLISLE SUPPLEMENTARY REGULATIONS – Board agreed to postpone discussion until next meeting.

MINUTES – It was moved (Brem), seconded (Cahill) and unanimously voted to approve the minutes of 12/13/06.

FY08 BUDGET – Bedrosian, Risso and Fantasia met with the Finance Committee. The Board presented a guideline budget but which results in a reduction in level services since both the COLA (3.5%0 and step increases for Fantasia and deAlderete (\$1265 total) must come from the guideline budget. Bedrosian noted that 91% of the budget is salaries. This leaves very little to run public health programs and operate the office. Fincom suggested submitting a proposal to cover level services which would be presented in an override article. Bedrosian felt the town should cover salary increases, not the individual departments. Departments should not be forced to play with line items to meet an unrealistic goal. Public health is too important to deal with as an override. Risso suggested looking into how much time the administrative assistant works on permitting activities. It might be possible to offset more of her salary from the 53E. Fantasia was concerned about making this position too dependent on a revolving account. The Admin also handles a lot of the general public health work. The Board asked Fantasia to track the time and tasks. The Board can always ask Fincom to reconsider how the FY08 budget is allocated. Fincom is only interested in the bottom line. The proposed budget pays eleven hours to the Admin, an increase of one hour from FY 07 and eight hours from 53E (total 19 hrs/wk).

345 RUSSELL STREET – The Board had requested a report on the results of the emergency permit issued last fall. In letter dated 1/9/07, Gabrielle Dockterman advised that the work had been done but the results were less than anticipated. A report from Beaver Solutions dated 12/13/06 also recognized that the water levels were higher than expected. The company recommends adding a second water leveler in the spring. This will required a new permit. The owners will be advised.

CHESTNUT ESTATES - Review of plans entitled “Chestnut Estates Definitive Subdivision, prepared by Fay, Spofford & Thorndike, dated November 20, 2006” and “Chestnut Estates Conservation Cluster, prepared by Fay, Spofford & Thorndike, dated November 20, 2006”.

The owners of a previously landlocked parcel acquired an adjacent lot with an existing house. The Definitive Subdivision plan shows five possible lots with a potential for six lots as a conservation cluster and the Conservation Cluster Plan being proposed shows seven lots with the inclusion of the existing house lot. The Board of Health is required to comment to the Planning Board on the Definitive Subdivision Plan.

The Board discussed the results of the engineering review dated 1/15/07. In his review Frado noted deep holes were excavated to depths much shallower than the 10' DEP requirement mainly due to large boulders and stones. Heavier equipment might have been able to dig through these stones. Additionally, there is not enough adequate testing on all of the lots and woodwaste disposal was not addressed as required by the Board's regulation. The Board agreed that it was not possible to determine the suitability of the proposed lots due to inadequate testing results. Additional testing must be done and resubmitted. The applicant and Planning Board will be notified.

It was moved (Brem), seconded (Risso) and unanimously voted to inform the Planning Board that additional testing must be performed for plan entitled “Chestnut Estates Definitive Subdivision Plan ’ as further described

in engineering review letter dated 1/15/07 in order for the Board of Health to make a determination on the suitability of the proposed lots for siting individual sewage disposal system, house and well and that woodwaste disposal must be identified in accordance with the Board of Health Regulations.

RABIES CLINIC – there were only 18 pets vaccinated last year. Since it is a 3-year vaccine, certain years have a higher attendance. This is hard to predict. The Board agreed to sponsor a clinic but ask residents to call ahead. The Board will then decide whether to hold a one or two hour clinic. Fantasia will contact a veterinarian.

“COVENTRY WOODS” COMPREHENSIVE B PERMIT – Present for the discussion was Dan Hill, special counsel to ZBA, Gerry Preble of Beals & Thomas, peer reviewer, David Freedman from Planning Board, Steve Hinton and Ed Rolfe from ZBA, abutters and private consultants.

Bedrosian explained to the audience that the meeting was not a public hearing. No septic designs have been submitted to the Board and the developer has not yet applied for a septic permit. The purpose of tonight’s discussion is to provide comments on the septic and well issues for the next Zoning Board of Appeals (ZBA) meeting on 1/29/07. Bedrosian listed the issues to be discussed: irrigation, septic system designs, consultant reports, and the local garbage grinder allowance; why it is important for the ZBA to consider Carlisle’s unique features including its dependence on groundwater for private wells and finally the potential cost to remedy future problems caused by the Coventry Woods Development.

The Board then discussed whether it had the authority under public health statutes to require certain conditions in the comprehensive permit, or was it limited to recommendations. The Board agreed that its recommendations to ZBA should be based on what it anticipates will be the Board of Health requirements.

Well Testing - Holland asked about the well testing agreement between the developer and abutters. Hill said that there was general agreement on the water testing protocol which includes testing eight or nine abutters’ wells but there is no formal memorandum of understanding. Hill is preparing a permit condition that will include the well testing protocol. The Board agreed that it is important to flow test all of the wells at the same time. DEP only requires testing of three abutters’ wells but has agreed to review all the data submitted. If an irrigation well is proposed it should be tested along with the other wells. The Board has already made this recommendation to ZBA.

Irrigation - The proposed irrigation plan calls for an initial 20,000 GPD to be drawn from one irrigation well until plants are established. The Board has been asked whether this is a reasonable estimate and whether the Board has the right to restrict usage under certain conditions such as a drought. Holland said DEP has a methodology for determining drought conditions. It would not be inappropriate for the Board to specifically reserve the right to shut down the irrigation system if a drought condition or drought watch was identified by DEP. Brem said the Board should retain authority over the irrigation whenever there is a problem, not just during the initial planting or a drought. This is consistent with the Board’s powers to execute emergency orders during a public health crisis. The Board agreed that the initial withdrawal during the establishment of vegetation is significantly more than normal demand, but there are no specific rules to apply. Bedrosian was concerned that the demand for the irrigation well during the initial growing season would impact abutting wells. Holland said the pump test should determine whether there will be impacts. Brem said there is a possibility that a 20,000 drawdown might affect the onsite wells. Cahill would like reassurance that the pump test will adequately test for impacts and that the results will be considered by DEP. Risso suggested limiting the amount of water for irrigation and supplying the rest from an outside source.

Atty. Edward Woll, representing Louis Salemy (438 Concord St), asked to address the Board. He pointed out that a Board of Health is not expected to waive public health in favor of a 40B application. Even if the conditions exceed state law, they may be justified given local needs. Board of Health recommendations should be stated as future requirements. Woll said the Board needs to look at the total project (sewage disposal systems, wells, wetlands) when suggesting conditions, rather than taking one issue at a time. For example there is no DEP requirement that the five wells be treated as one, but in reality the five wells create a wellfield. The aggregate demand of 10,000 GPD should have a protective radius 250’ rather than the 145’ per well proposed. He suggested that the Board clarify this zone of influence with DEP. Woll had spoken with a DEP staff person in

the Central Region about an internal DEP Standard Operating Procedure (SOP) that would treat the five wells as one wellfield. This is not yet a policy or a regulation, but something that the Board should consider. A significantly larger well radius would require changes to the entire development.

Woll noted that the irrigation well will be used after the rain collection cisterns are empty; however based on the amount of water needed (20,000GPD) and the size of the two cisterns (12,000 gals) the well will be needed everyday during startup. Woll noted that groundwater moving through bedrock is different from surficial water supplies and harder to evaluate. Finally he is concerned about the minimal 150' distance between Septic System "C" and the Epstein well. Effluent tends to slide over bedrock and could possibly affect this well. Much depends on the topology, depth to bedrock, and existing fissures.

Preble agreed that the siting of the wells was a geometrical exercise to overcome the Zone I setbacks. He had discussed this with the state as had the Board. He did not think DEP would take a position different from what they normally allow. Each of the five wells should be able to supply 1/5 of the water needs without impacting other wells. If this is not the case, the Zone I's will need to be increased. The irrigation well is a problem and should be tested along with the public wells. This is not a new issue. Preble was disappointed that the pump test has not been done since this data would be very helpful in evaluating the size of the development.

Alex Parker (77 Russell St) said there could be hydraulic coupling between wells with overlapping Zone I's. The only way to test for this would be to pump one well and watch the other four. He is also concerned about recharge. Water going into a septic system eventually leaches back into the groundwater. Irrigation water evaporates so there is less recharge. Parker would like to see a requirement to use Zeriscape landscaping which significantly reduces water usage with drought resistant plantings and hardscape.

Bedrosian would like the wells tested for hydraulic coupling. The Board was uncertain whether it can require this testing since DEP is the permitting authority for the public wells. David Freedman of the Planning Board argued that lack of data has been a problem all along. You need data to make informed decisions. The applicant expects that DEP will make the correct assessment, but DEP's assessment may not be as critical as the Board of Health's in determining full impact. Freedman said the Planning Board has recommended that all engineering data be made available pre-permit. It is better to have the data pre-permit so that it can be addressed before construction starts. Post permit remedies are always more difficult to impose. Holland said that from his professional experience the well cluster should work. It is unusual for a developer to test a property before he owns the land. Bedrosian noted that the Board had previously recommended conducting the pump test during August or September. If this information is required pre-permit it would mean keeping the hearing open and the applicant may not agree. Hill noted that an appeal at this point might take as long as delaying the pump test into August.

Holland said that DEP will be issuing the permit for the wells. It is up to DEP if they want testing at a certain time. These are bedrock wells. There is not as much seasonal impact to bedrock wells as there is to surface supplies. As for doing the flow test pre-permit, neither Holland nor Brem feels it is necessary. Freedman is concerned about addressing impacts since possible remedies were taken out of the MOU. The Board could recommend no work until the testing is completed so that any resulting changes to the plan could be addressed prior to issuing a permit. Brem said that if there are substantial changes such as relocation of wells or a change in Zone I's, it would require an amended permit. Holland said the developer cannot get a building permit without proof of potable water. This is a State Building Code requirement. Hill said there is a condition that no site clearing can occur prior to Board of Health and Conservation permits. Epstein said that the abutters have been asking for over a year to have the wells tested pre-permit. It is the developer's decision not to do this. The Board of Health has already recommended testing during low water season. Both Bedrosian and Risso continue to prefer testing during low water season. Risso said his bedrock well is affected during low water periods.

Bedrosian asked what would happen if an additional well was drilled later. The Board noted that the comprehensive permit governs for the life of the development and any change to this plan voids the permit unless approved by ZBA.

The Board agreed that its authority to monitor the irrigation well should be clearly stated in the conditions of the comprehensive permit.

Bedrosian asked whether the condition would cover problems if no direct cause could be determined. Board members agreed the language was broad enough for the purpose. The Board also agreed on the following:

The Board will send a request to Jim Persky of DEP Northeast Region asking for a clarification of the Zone I's for the five wells and to check for hydraulic coupling. If there is an observable impact, DEP should consider the area a well field rather than individual zones. These items will also be referenced in the Board's comments to ZBA.

If the pump test results change the Zone I Radii, there will be a new hearing before ZBA on the amended plan. Hill agreed to add a condition stating this.

The permit specifically refers to the five public wells and one irrigation well identified on the plan. Any change in the number of wells or volume to be pumped requires a new hearing for an amended plan.

Hill said the ZBA would be interested in the Board's comments on the proposed irrigation, specifically as to the proposed demand and use of alternatives such as additional rain water cisterns. Parker again requested that Zeriscaping be considered to reduce demand. Risso favors limiting the amount withdrawn so that it is comparable to the average home. He suggested 3-4000 GPD and provide other sources during the initial planting period. Bedrosian was in favor of setting a limit and bringing in outside water.

Heidi Kummer (63 Spencer Brook Lane) asked how the Board would monitor the irrigation usage. The Board will ask for quarterly meter readings.

Preble said the landscape plan includes drought resistant plantings. Beals and Thomas is evaluating this plan. Joan Parker described Zeriscaping which includes small stones, mulch, and plants which require less water. She said you do not need grass to landscape. Kummer suggested prohibiting irrigation entirely. Hill asked whether the Board was interested in doing this. Brem did not think it was a practical solution and would be overly restrictive. Nancy Callum (36 Russell St) could not see a down side to prohibiting irrigation. It would help to balance out the density impacts of the development. Bedrosian agreed with Brem that residents will most likely want to water lawns and plants. It is better to control irrigation with meters than pretend it will not happen. Salemy liked the idea of limited use, comparable to what a standard home on two acres might use. The Board could calculate this amount and cap the withdrawal from the well. Hill said there did not seem to be consensus on the Board on requiring Zeriscaping.

Another approach suggested would be to reduce the proposed irrigation described in the consultant's memo of 10/10/06 consisting of 20,000 GPD during plant establishment by 50% or 10,000 GPD. Outside sources could then be used to make up the difference. Once the plants were established, the amount of water to be drawn for irrigation could again be reduced. Holland did not necessarily agree with this approach. He did not think that overall the proposed volume was unreasonable given the area to be irrigated. He would prefer to have Beals & Thomas make a recommendation based on the area to be watered and plantings. The Board noted that area over "C" will need to be watered to establish some type of cover. It was unclear what is being planned for this area or whether it was included in the irrigation consultant's report. Brem noted that occupancy will be phased. It is unlikely that all of the units will be occupied when the initial landscaping is installed. A decrease in water usage for the units could help compensate for some of the initial irrigation demand. The Board asked Hill if the hearing was going to close on 1/29/07. Hill said that seems to be the intention, but he could not say definitely. The Board agreed to send a letter to the ZBA asking for additional time before closing the public hearing in order to evaluate the recommendations from Beals & Thomas on irrigation and landscaping.

The Board then moved on to a discussion of Septic System "C". Scott Horsley of the Horsley Witten Group asked to address the Board on behalf of the Epsteins. Horsley summarized his letter to the Board of 1/11/07. Horsley began by saying that Title 5 is a minimum compliance regulation and local regulations are intended to provide additional safeguards based on the particular needs of the community. For Carlisle these needs are the

result of having no town water supply or sewage system, a high water table, extensive ledge and wetlands. The local regulations also recognize that bacteria, viruses and pathogens can travel great distances through the soil and bedrock fissures. Horsley emphasized that a decision on a comprehensive permit must take into account not only the economic viability of the project but also local needs. Of particular concern to Horsley is the siting of Septic System "C". The size, height, and proximity of this system to the Epstein property is particularly problematic. Horsley reviewed test data and water levels around the area of Septic System "C" and the Epstein property. This preliminary analysis indicates that there will be significant groundwater mounding and the minimum 5' offset to groundwater will not be met. In addition there is a downgradient hydraulic flow between this system and the Epstein property which may not be sufficient to prevent water quality impacts to nearby wells. It is important to address this issue pre-permit since a redesign would have a major impact on the project as a whole.

Horsley offered the following recommendations:

- Evaluate through water quality engineering models the potential impacts particularly of nitrogen, pathogens, fecal coliform and viruses to nearby wells from the wastewater discharge from System "C".
- Conduct a groundwater mounding analysis to determine whether System "C" can be built in compliance with Title 5. The system could potentially need an additional 4-7' in height to maintain the required 5' of vertical separation. The resulting groundwater mounding could extend offsite onto the Epstein property and result in a 1-2' increase in the water table below the existing Epstein system, putting that system at risk of failure. There are also two nearby storm water detention basins so storm water infiltration should be included in the mounding analysis. Horsley recommends a complete hydro-analysis of the area surrounding "C". The assessment should be done pre-permit to avoid costly remediation.
- Monitoring wells should be installed downgradient of the system and a rigorous monitoring program required. Action plans should be established to address future problems. The worse case would be the construction of a waste water treatment plant at a significant cost.
- Local needs, as listed in the Board of Health regulations, should be included in the Comprehensive Permit. Installing a 5-8000 GPD soil absorption system upgradient to a private drinking water supply does not meet Carlisle's local needs criteria.

Holland asked if Horsley had a specific model in mind. Horsley said there are different models for different applications. It should be possible to choose one that adequately predicts the flow characteristics of the site. Brem asked whether Horsley had done any testing. Horsley said that he had used the testing data of the design engineer. This data was plotted and evaluated based on the downgradient location of the Epstein property. Although "C" includes a FAST system, and may use the Presby-Enviro system, these technologies alone will not reduce the nitrogen loading to prevent downgradient impacts. To get to a level consistent with drinking water standards, tertiary treatment would be required. Brem agreed that he is concerned about the height of "C". Even at the current elevation it may not meet the requirements of Title 5. Horsley said it is the highest system he has ever reviewed. It is not what Title 5 had in mind. Holland predicted that groundwater mounding will be a problem. He is not convinced that the system is constructible under Title 5. DEP would most likely take the same position. It would be unlikely that the state would grant any variances for this system due to proximity to private wells. He would require that the applicant prove that the system could reasonably be built in compliance with Title 5 before issuing a comprehensive permit. The applicant would need to conduct a full groundwater mounding analysis and transport analysis to prove this. DEP will already require a groundwater mounding analysis since the system is greater than 2000 GPD. Board members agreed that this engineering information should be provided before a comprehensive permit is issued since it could result in major changes to the development.

Bedrosian asked about a garbage grinder allowance (165 GPD) which is required in Carlisle. Holland and Brem did not think this was necessary. This allowance was intended to provide additional protection for towns without public water supplies under the older codes. Title 5 design flows have improved and there is a better factor of safety built in. The design flows required are reasonable for this type of development.

Preble said that design of "C" includes some preliminary groundwater mounding. He had asked for the full analysis, but was only given some of the data. He would not expect a significant increase in height, but the

mounding analysis could probably add a few more feet. Horsley again recommended a numerical mounding analysis and a transport module to determine pollutant travel. The Board agreed that this information needs to be presented pre-permit. Although it may be possible to design a Title 5 system, the functioning of this system may be problematic. The Board would not want to see a 20' high retaining wall built in lieu of breakout grading. As little as an additional 1-2' in height could cause significant problems. Horsely said that in his experience Board of Health concerns about local needs carry more weight pre-permit.

Hill asked about the additional cost. The Board estimated \$15-30,000 to do the studies. The Board said that the groundwater mounding analysis, which is the largest part of the cost, is a Title 5 requirement. The transport module would be a smaller additional expense, but one that the Board of Health feels is essential.

Freedman pointed out that the developer has had plenty of time to do this testing and submit the data. It was his choice to delay obtaining the Board of Health permits. This has also been a problem for the Conservation Commission. Epstein agreed that the applicant has been continuously advised of these issues and has chosen to wait to address them. Hill said the Board needs to state what it is looking for and why. The Board needs to include a statement that it does not think "C" will work and that since a redesign would have major impact to the overall development it is critical to have this information reviewed pre-permit.

The Board agreed to send a memorandum to ZBA with the finding that based on their professional experience and the expert testimony provided by professional consultants, the Board of Health is concerned that the proposed design of Septic System "C" cannot comply with Title 5 and that this issue needs to be decided pre-permit due to the major changes to the development that would result from a redesign.

It was moved (Brem), seconded (Cahill) and unanimously voted (5:0) that due to the perceived impacts to public health and in accordance with local needs the Board of Health requires the applicant to provide a groundwater mounding analysis performed in accordance with Title 5 and provide a solute transport model proving that nitrogen levels will meet drinking water standards at the property line and that total fecal coliform and virus transport at the property line be limited to "0" colonies and "0" units respectively in advance of the Board of Health offering recommendations to the Board of Appeals and prior to the issuance of a conditional approval.

The Board also concluded a previous discussion on irrigation with the following motion:

It was moved (Brem), seconded (Bedrosian) and unanimously voted to recommend the following condition to Zoning Board of Appeals for inclusion in the comprehensive permit: the Board of Health has the authority to order a cease and desist of the operation of the irrigation wells due to a known direct impact to the water supply wells of the project or abutting wells, or due to an established drought condition pursuant to the Water Management Act or for any other reasonable consideration.

There was no further business discussed. Meeting voted to adjourn at 11:15p.m.

Respectfully submitted,

Linda Fantasia
Recorder